

made the book more interesting and would exhibit the close connection that topological dynamics has with other branches of Mathematics.

Another subject which is almost entirely missing is the strong tie, formal as well as actual, between ergodic theory and the theory of minimal sets. However perhaps this is a subject for another book.

An obvious disadvantage of the book is the regrettable lack of index.

BIBLIOGRAPHY

- [G-H] W. H. Gottschalk and G. H. Hedlund, *Topological dynamics*, Amer. Math. Soc. Colloq. Publ., vol. 36, Amer. Math. Soc., Providence, R.I., 1955.
- [E,1] R. Ellis, *A semigroup associated with a transformation group*, Trans. Amer. Math. Soc. **94** (1960), 272–281.
- [E,2] —, *The Veechs Structure Theorem*, Trans. Amer. Math. Soc. **186** (1973), 203–218.
- [E,3] —, *Lectures on topological dynamics*, Benjamin, New York, 1969.
- [A-G-H] L. Auslander, L. Green and F. Hahn, *Flows on homogeneous spaces*, Ann. of Math. Studies no. 53, Princeton Univ. Press, Princeton, N.J., 1963.
- [F] H. Furstenberg, *The structure of distal flows*, Amer. J. Math. **85** (1963), 477–515.
- [D] F. M. Dekking, *Combinatorial and statistical properties of sequences generated by substitutions*, Ph.D. Thesis, Katholieke Universiteit, Nijmegen, 1980.
- [V,1] W. A. Veech, *Point distal flows*, Amer. J. Math. **92** (1970), 205–242.
- [V,2] —, *Topological dynamics*, Bull. Amer. Math. Soc. **83** (1977), 775–830.
- [E-G-S] R. Ellis, S. Glasner and L. Shapiro, *PI-flows*, Adv. in Math. **17** (1975), 213–260.
- [G] S. Glasner, *Proximal flows*, Lecture Notes in Math., vol. 517, Springer-Verlag, Berlin and New York, 1976.
- [B] I. V. Bronstein, *Extensions of minimal transformation groups*, Sitjthoff and Noordhoff, 1979. (Russian edition, 1975)
- [M] J. C. Martin, *Substitution minimal flows*, Amer. J. Math. **93** (1971), 503–526.

ELI GLASNER
TEL-AVIV UNIVERSITY

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Obstacle problems in mathematical physics, by J.-F. Rodrigues. North-Holland Mathematics Studies, vol. 134, North-Holland, Amsterdam, 1987, xvi + 352 pp., \$71.00. ISBN 0-444-70187-7

In the beginning, the study of variational problems was very simple. The typical problem was to minimize a convex functional over a simple subset of a standard Banach space (or Hilbert space). For example, if Ω is a planar domain with smooth boundary Σ and g is a function in $W^{1,2}$, the space of functions with square integrable derivatives, we can look for functions minimizing the functional

$$I(v) = \int_{\Omega} |Dv|^2 dx$$

over the subset \mathbf{K} of $W^{1,2}$ consisting of all functions which agree with g on Σ . (Because of the form of the functional, $W^{1,2}$ is a natural space to work